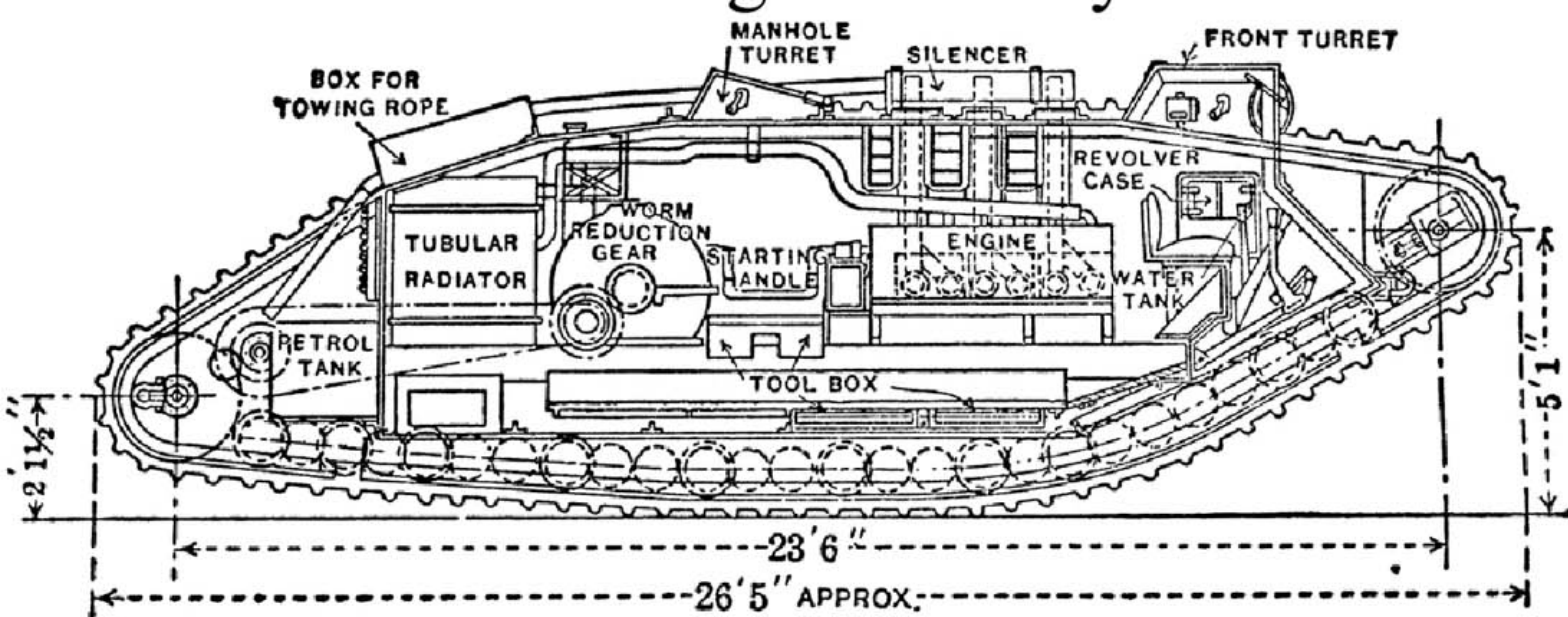


Evolution of the Tank

A Brief History of the Land Dreadnoughts and Their Increasing Efficiency in Battle



THE first armored battle cars or "tanks" were a British invention developed from an American automobile tractor used for agricultural purposes on the Western prairies. They made their initial appearance at the battle of the Somme, Sept. 15, 1916. Various models were tried successively after that, both by the French and by the British, with two diverging tendencies, one toward smaller and more mobile machines, culminating in the French "baby tanks," and the other toward still more powerful and heavy machines, culminating in the Mark V. model, weighing thirty-six tons and armed with six-pounder guns. When the war ended there were in hand extensive developments of both kinds of tanks that gave promise of force sufficient to smash through the enemy lines with impunity in the following Spring.

When trench warfare resulted in the establishment of fixed lines the British Navy's armored car division lost its former value, demonstrated in the early part of the war in scouting and skirmishing expeditions. Lieutenant Walter G. Wilson, R. N. V. R., of Squadron 20, throughout 1915 carried on experiments with a view to discovering a trench-crossing machine which would take infantry into the enemy lines with comparative immunity from rifle and machine-gun fire. Meanwhile the Landship Committee, with Mr. (now Sir Eustace) d'Eyncourt as Chairman, had been formed. The test laid down was that the machine must be able to climb a parapet four and a half feet high and cross a trench five and a half feet wide, this being the average dimensions of an enemy trench; it also had to cross soft ground of a consistency equal to Flanders mud and break through barbed wire posts.

Lieutenant Wilson worked in conjunction with Mr. (now Sir William) Tritton of the engineering firm of W. Foster & Co., at Lincoln, and at that firm's works two experimental machines were set up, nicknamed Little Willie and Big Willie. In the latter was embodied the germ from which sprang all subsequent types of tanks—i. e., a curved armored steel hull with all-round track. Trials took place at Hatfield Park in January and February, 1916, at which the King, Mr. Lloyd George, Lord Kitchener, Commodore Sueter, and Mr. Churchill were present. It was the last-named who, as First Lord of the Admiralty, sanctioned and encouraged the experiments when there was a marked lack of enthusiasm in high military quarters.

FIRST EXPERIMENTS

Foster's was ordered to build 125 machines, and in order that no whisper should reach the enemy of what was afoot and owing to some resemblance borne by the very first machine to an oil tank cart such as used to be seen in the streets of London, the name "tank" was adopted. It was undoubtedly the best-kept secret of the war. Supply was placed in the hands of a leading member of the Landship Committee, also an officer of the Armored Car Squadron, Major Albert Stern. (now Colonel Sir A. Stern.) a man of immense resource and energy. Colonel Stern put his whole heart and soul into the pioneer work of production, and was not afraid to enlist the support of the most powerful in the land when opposition had to be broken down. Another order for tanks was given to the Metropolitan Carriage Works Company, Birmingham, and in time this firm became the backbone of heavy tank production.

By September, 1916, a considerable number of tanks, Marks I., II., and III., were in France ready for action, receiving their first practical test on the Somme. They carried 105 horse power Daimler engines, with an armament of 6-pounder 40-calibre naval guns and machine guns and averaged two miles an hour on fairly hard ground.

With the development of the tanks,

these first machines, by the end of the war, had come to be looked upon as the Noah's Arks of the Tank Corps, with the cartwheel device at the back for getting over awkward angles. It had become manifest that speed, steering, and invulnerability had to be greatly improved, and the terrain for these juggernauts of war carefully chosen. The huge possibilities of the tank even in its primitive state were exemplified in the Ministry of Munitions Journal, in which it was reported that on Sept. 25, 1916, one tank followed by a company of infantry cleared 1,500 yards of enemy trench, killing many Germans and capturing 860 prisoners at a cost of five casualties to English troops.

TANK MARK IV.

Thus came the Mark IV. tank, with its epicyclic control, its thicker armor plate, and its unditching gear, a beam which could be manipulated to lever it out of awkward holes. The latter device, however, could not be used unless the crew exposed themselves, a drawback that was remedied in the later types. The Mark IV. male tank carried two 6-pounder guns of a new type, shorter than the naval gun, and four Lewis machine guns; and the female tank six machine guns. Its highest speed was a little less than four miles an hour on firm ground, and it weighed twenty-eight tons and measured twenty-six feet over all. It had a 150 horse power Ricardo engine.

Meanwhile the medium Mark A tank, commonly known as the "whippet," had been designed. It weighed seventeen tons, carried two forty-five horse power Tylor engines, had a maximum speed of eight miles an hour, and was armed with four Hotchkiss machine guns. The crew comprised one officer and three men. It made its debut in a minor action during the great German push in March, 1918, and in the following month filled the enemy war correspondents with dismay at machines "which could outpace cavalry and were too quick for field guns to put them out of action." This was an exaggerated notion of the mobility of the whippet, but the machine did accomplish some remarkable feats. Near Villers-Bretonneux, after the German bid for

Amiens had failed, a few whippets routed a German brigade, causing 400 enemy casualties at a cost of five British casualties and one whippet hors de combat.

FRENCH BABY TANKS

By this time the French had taken up tanks most enthusiastically, and their light Renault chars-a-suxot—with a thirty-seven-millimeter gun or eight-millimeter Hotchkiss machine guns—caused the enemy almost as much uneasiness as its British prototype.

Louis Renault had submitted a model for smaller tanks to the French commission handling such matters. No decision being reached regarding their use, he manufactured at his own risk of failure one hundred of these light machines and presented them to General Pitain. After seeing them in action the Commander in Chief of the Armies of the North and Northeast realized their possibilities, and a large order was given Renault's firm. These tanks, manufactured in great numbers, contributed largely to the victory obtained by Mangin's army on July 18, 1918. To commemorate this event and to express due recognition of Renault, the French Association of Automobile Manufacturers tendered him a banquet on the occasion of his nomination as a member of the Legion of Honor.

The heavier French tanks—the St. Chamond and Schneider—carried much more formidable armaments than the British machines, but were necessarily less mobile with their seventy-five-millimeter (about 8.3 inch) guns and ammunition. All these machines did well at the battle of Noyon and other engagements.

THE MARK V.

Other types were being designed in England throughout 1916 and 1917—gun carriers, salvage, and infantry supply—but every nerve was strained to improve the heavy fighting tank. Thus came the formula, was finally adopted as the motive power and basis of the war tank. Colonel I. C. Welborn, Director of the Tank Corps of the United States Army, made the following statement in December, 1918, about the evolution of the machine which the British first used at Delville

Wood on Sept. 15, 1916, in the battle of the Somme:

For several years prior to the world war the authorities of the British Army had been endeavoring to create some machine highly destructive in its fighting capacity, and at the same time affording maximum protection to human life. The Holt Manufacturing Company, maker of the Holt farm tractor, was giving a tractor demonstration in one of the large German cities (in 1914). A representative of the British Government who happened to see the exhibit conceived the idea that the caterpillar tractor might be employed in propelling a huge steel fighting machine which would enable a moving fort to negotiate the steepest hills and to move over difficult ground impossible of passage by any other vehicle. This officer immediately brought the tractor to the attention of General (then Colonel) E. D. Swinton of the British Army, who also realized the effective use to which the caterpillar tractor could be put.

GENERAL SWINTON'S TESTIMONY

Whether General Swinton was the first to prepare a model of the superstructure of an armored turret car based on a caterpillar tractor is still disputed by some of his countrymen. When General Swinton visited the United States in June, 1918, he frankly said:

America must be credited with both the machine gun and its antidote, for in Antwerp in 1914 [not in a German city, it seems] a friend of mine saw for the first time an American agricultural caterpillar tractor. He wrote to me inquiring if there were not some military uses to which the idea could be put, and the invention of the tank resulted.

The tank idea was born of the tactical problems of the Great War, not long after the first battle of the Marne, when trench fighting began and open warfare was brought to a sudden stop. Never before had defenses bristled so densely with wire entanglements. Open warfare, according to Field Marshal Haig, was resumed in some degree in the battle of the Somme, but it was not until Sir Julian Byng made his surprise attack on the German line before Cambrai in the Autumn of 1917 that tanks were employed in force and without

Humorous German Balance Sheet of Gains and Losses

In an August issue of the Berlin comic paper, *Ulk*, appeared the following ingenious "Balance Sheet of the War."

PROFIT AND LOSS TO AUG. 1, 1919

<i>DEBIT.</i>	Marks.
Maintenance of Germany at The Hague Conference	113,706,500
U-boat war	110,000,000
Depreciation of enemy	120,800,000
The great Pan-German clique....	684,000,000
Speeches of Kaiser	200,277,492
The German Professors.....	3,120,000
Sinking of Lusitania.....	342,200,000
Deportation Belgian workmen...	280,400,000
Baseless destruction of enemy territory	1,800,000,000
Food organization at home.....	174,218,188
Activities of war press.....	12,000,000
	3,837,522,161
Total	German Republic (Incorporated.)
	Marks. Pf.
<i>CREDIT.</i>	
Patriotic spirit of war volunteers	120,000,000.00
The German soldier.....	1,000,000,000.00
Strength to endure.....	50,000,000.00
Eight patriotic poets.....	.80
	2,857,522,160.20
Loss	3,837,522,161.00
Total	(Formerly the Kaiser's Empire.)